

have failed, and when the disease is still extending, then the surgeon should interfere before the strength has been reduced by the ineffectual struggles of the patient to obtain air through the obstructed air-passage.

"I have now performed tracheotomy twenty-one times, with the result of seven recoveries; and if it be remembered that the patients were all on the point of death from suffocation, it cannot but be regarded as an encouragement to the surgeon to endeavour to save life by operative interference in the later stages of this most fatal disease."

31. *Paracentesis Thoracis*.—M. MARROTTE, of the Pitié Hospital in Paris, has recently placed before the profession in France a summary of the present state of knowledge in that country, and of the opinions at present there held regarding the operation of paracentesis thoracis. The subject has been repeatedly, since 1836, brought before the medical societies of Paris; it has been discussed five times in the Academy of Medicine since 1849; and in 1854 was the subject of a report by M. Marrotte. In the present day, says M. Marrotte, paracentesis thoracis is universally recognized as an operation; but there are two opinions as to the circumstances under which it should be performed. Some regard it as an operation of necessity, admissible in cases only where death is imminent; while others employ it with the view of preventing grave accidents, and even of facilitating the cure of the disease. The points on which M. Marrotte specially comments are the following:—

1. The accidents attendant on paracentesis thoracis as an operation.
2. The information which we possess regarding sudden death during an attack of pleurisy, the frequency of its occurrence, its causes, and the means of preventing it.

3. The indications for performing paracentesis in—*a*. Acute and chronic serous effusion; *b*. Sero-sanguinolent effusion; *c*. Purulent effusion.

1. As regards the accidents attendant on paracentesis thoracis as an operation, its partisans have affirmed that it has never in their hands produced mischief; while its opponents have accused it of always having a casual relation to the deaths following it. On this, M. Marrotte admits that, while it is true that death has generally been the result of tubercle, cancer, lobular pneumonia, pericarditis, endocarditis, hemorrhage into the pleura or bronchi, there are several instances on record, in which the operation cannot have been unconnected with the fatal result. Thus, in two cases, death occurred within twenty-four hours without evident cause; in two others, air entered the pleura; in one, the operation appeared to M. Marrotte to increase the inflammation and promote the transformation of the effused fluid into pus; and, in one related by Claude Bernard, and also in one seen by M. Marrotte, fatal peritonitis was apparently produced by puncture of the diaphragm. M. Woillez has stated that the lung has sometimes been perforated, but that the lesion has escaped notice on account of the small size of the opening; but M. Marrotte regards this as not having occurred so frequently as is supposed. He admits, however, that, in a case observed by Aran, pneumothorax was really produced by puncture of the lung. There are also on record a case in which the pleura was detached; several where the escape of the fluid through the canula was obstructed by false membranes; and others where the trocar was plunged into a mass of dense false membrane.

Other alleged consequences of paracentesis thoracis have been syncope, cough, and inordinate flow of blood towards the thoracic organs, producing streaks of blood in the sputa, hæmoptysis and pulmonary apoplexy, the rapid reproduction of the effused fluid, sanguineous effusion into the pleura, or the development of pneumonia or the exacerbation of the pre-existent pleurisy. M. Marrotte regards these accidents as being, when of any importance, attributable to the disease rather than to the operation.

But, while paracentesis thoracis is a more harmless operation than is supposed by many, M. Marrotte regards its innocuity rather as an excuse for than as a justification of its performance. Accidents not met with in one series of cases may occur in another series. It is not every practitioner who possesses the tact necessary to prevent the operation from being improperly or unnecessarily

performed. Whenever a remedy is applied, there should be reasons for doing it; and the habitual harmlessness of an operation is not one of them.

2. Sudden death has been affirmed by observers of high repute to occur more frequently in pleurisy than in other diseases. The nature of the functional disturbance produced by the effusion is favourable to this result; but M. Marrotte asks, is sudden death as frequent as some believe it to be? M. Marrotte does not deny that death occurs suddenly in pleurisy; but he has so rarely observed it in his twenty years' hospital experience, he has found the same facts so often adduced in support of the statement made as to its frequency, it is so easy to be misled by simple coincidences, and facts multiply so rapidly when they are sought for, that he suggests a comparative study of the question, with reference to all diseases. Some years ago, seven patients died suddenly, in his practice and that of M. Gendrin, within a few months, during convalescence from typhoid fever; and he asks whether it must be thence inferred that sudden death frequently occurs in typhoid fever?

In 1854, syncope was regarded as almost the only cause of sudden death in pleurisy. It was considered to be favoured by the impediment offered by the effusion to the respiration and circulation: fatal syncope being determined, in these conditions, by violent movements, too rapid breathing, or mental emotion. But, while syncope is a plausible explanation of death in some cases, where there is no other apparent cause than excessive effusion with or without displacement of the heart, the syncope is often better explained by the coincidence with the pleurisy of disease of the heart, especially of the pericardium.

In other cases, death has really resulted from the presence of coagula in the heart or pulmonary artery; either formed on the spot, or carried thither as emboli. The presence of these clots cannot be attributed to the amount of effusion; for they have been met with where there has been but little. In M. Marrotte's opinion, abundant effusion predisposes to the formation of clots only through the impediment offered to the circulation and respiration. Slow asphyxia, much more insidious than rapid asphyxia, produces in the blood a relatively increased proportion of fibrin, which recent observations have shown to be favourable to the formation of clots.

M. Marrotte, agreeing with M. Goupil, observes that sudden death in pleurisy occurs at so late a period of the disease, that the fear of this event does not warrant the premature performance of paracentesis; and that it is always preceded for a sufficient length of time by premonitory symptoms.

3. M. Marrotte now proceeds to consider the indications for the operation; and first, in cases of serous effusion. In cases of pleurisy attended with excessive effusion, paracentesis is absolutely necessary when asphyxia is imminent, whatever may be the concomitant symptoms. But, when the respiration and circulation are not markedly impeded, the immediate performance of the operation is not necessary, even though the viscera be notably displaced, and the heart even pushed beyond the middle line; by delaying it too long, however, there is danger lest mental emotion or physical effort may produce rapidly fatal syncope or pulmonary congestion.

If there be slow asphyxia, or acute asphyxia, as in cases where the ascent of the effused fluid is rapid; if dyspnœa be evident to the patient, or to the physician alone; if the circulation be impeded; if the pulse be unequal, irregular, intermittent; if syncope be present or be threatened—the operation should be performed, even when there is no displacement of the heart. This precept is strongly insisted on by M. Marrotte; with one limitation. Effusion may take place rapidly, and produce dyspnœa, without compromising life; the lung is surprised for the moment, but soon becomes accustomed to the new condition in which it is placed.

The presence of effusion is almost unanimously considered to be a condition necessary for operation; but some practitioners regard the mere presence of effusion itself as a sufficient indication for paracentesis; while, with others, it must have reached a certain degree and produce certain symptoms.

*Acute Serous Effusion.* It has been recommended by some practitioners to puncture the pleura at a period varying from the seventh to the eleventh day; while others advise that the operation should be delayed until the fifteenth or

even the twentieth day. But, says M. Marrotte, those who thus lay down absolute rules as to time, forget that all cases of pleurisy do not run through their stages in the same period; that their rise and progress are subject to conditions which vary in each case; that the cause of the effusion is not removed by the operation; and that of itself it cannot, beyond its physical effect, fulfil the necessary indications of treatment. This is so true, that M. Béhier, one of the advocates of early operation, after recommending the ninth or eleventh day for its performance, recognizes the impossibility of precisely fixing the proper moment. M. Marrotte seeks indications in the state of the disease itself rather than in general arbitrary rules. Except in cases where death is imminent, he holds that it is impossible, at a period varying from the seventh to the eleventh day, to affirm that a serous effusion, the result of latent pleurisy, will not yield to medicinal treatment.

The presence of active inflammation is a contraindication to the operation; if, however, the symptoms be very urgent, puncture of the chest may be resorted to in order to procure temporary relief, but it will not prevent the reproduction of the fluid.

It is generally admitted that paracentesis is neither necessary nor useful in recent cases, where the effusion is moderate in quantity; but some maintain that, where the effusion, although not so great as to produce danger, is yet considerable, the operation may shorten the duration of the medicinal treatment, and prevent the formation of solid adhesions. M. Marrotte, however, cannot regard paracentesis as presenting great advantages over ordinary treatment in these cases. It may be that dyspnoea and febrile symptoms have ceased, as if by enchantment, after paracentesis; and evacuation of effused serum has been proposed as an antiphlogistic remedy in inflammation of the tunica vaginalis and of the eye; but this practice must be justified by more numerous and better studied facts before it can be generally adopted. M. Marrotte acknowledges, however, that he has met with cases where early paracentesis has appeared to shorten the duration of medicinal treatment, and to prevent contraction of the chest.

In the same category with very abundant effusion, as regards the effects produced on the respiration and circulation, may be classed those cases where, in addition to effusion, some impediment to respiration, such as bronchitis or œdema, exists in the opposite lung; and cases of double pleurisy, especially when complicated with pericarditis. In such cases, M. Marrotte agrees with M. Béhier in admitting the utility, and even the necessity of paracentesis.

M. Béhier recommends the fluid to be evacuated when the patient seems too feeble to be able to bear the long process of absorption of an effusion occupying the whole, or nearly the whole side of the chest. But, in cases of this kind, M. Marrotte says, the probabilities of non-reproduction of the fluid must be considered; for evacuation of serous cavities tend indirectly to induce exhaustion, and to produce the very result which is sought to be avoided.

M. Marrotte confirms a statement made by M. Béhier, that the presence of pulmonary tubercle is not an absolute contraindication to paracentesis. He has performed the operation in a patient with pulmonary tubercle and ascites, who was in danger of suffocation. The fluid was partly reproduced; but, under the influence of tonics, cod-liver oil, nutritious diet, and the external use of tincture of iodine, the effusion both into the pleura and the peritoneum disappeared. The patient, however, died a year afterwards of tubercular disease of the meninges. In two or three other cases, the pleurisy and the pulmonary tubercle went on to a fatal result. In one other case only, where pulmonary tubercle coexisted with considerable effusion, M. Marrotte obtained a successful result by paracentesis. As far as can be judged, the cases of this description where paracentesis is likely to succeed, are those in which the tubercles are stationary, or undergoing very slow development; and where the pleurisy, whether symptomatic or accidental, is of the latent form. On the other hand, where the phthisis and the pleurisy are acute, puncture is not only useless, but hastens the transformation of the effused fluid into pus.

*Sero-Sanguinolent Effusion.* The presence of blood in pleural effusion is generally connected with cancer or tubercle of the pleura; hence an unfavour-

able prognosis must generally be pronounced, not only as to the issue of the malady, but as to the immediate result of the operation. There are, however, cases on record in which, even though the fluid has had a reddish colour, recovery, even rapid, has followed paracentesis; but in these the idea of pleural cancer or tubercle cannot, of course, be entertained. Although these favourable cases are rare, it is important to be able to recognize them. Independently of other circumstances indicating the absence of constitutional disease, they are distinguished, M. Marrotte thinks, from sanguinolent effusions symptomatic of organic lesion, by the small proportion of blood in the fluid. Sanguineous effusions connected with cancer or tubercle are generally more coloured, the presence of blood is more distinctly marked, and the fluid which escapes towards the end of the operation more or less resembles pure blood.

*Chronic Serous Effusion.* The results of paracentesis appear to have been generally unfavourable in cases of chronic effusion; and hence some reject the operation, without denying that cures are possible. Cases in which recovery has followed have been cited by M. Woillez; but our judgment is at fault, when we inquire when chronicity commences, what cases of chronic effusion are likely to receive benefit from puncture, and how they may be recognized. Chronicity has generally been defined according to the duration of the disease, rather than according to its progress and symptoms. But M. Marrotte observes, a distinction must be drawn between those cases where the disease is still active, and often ends in the development of tubercle or pus, and those where there is serous effusion, properly so called, the simple remains of the disease. Chronic pleurisy—that is, where the pleuritic process is still active—comes much more under the domain of medicinal treatment than of paracentesis.

Of effusions which are met with as the remains of pleurisy, some have followed more or less active inflammation, accompanied by the formation of plastic products which have become organized and have produced impediment to the expansion of the lung. In these cases, puncture will probably fail, if delayed for two, three, or six months; but, if the history of the case lead to the supposition that there has been acute dropsy of the pleura, or simple latent pleurisy—in both which the plastic products are small in quantity—there is a chance that the lung will expand on the evacuation of the fluid, although the effusion is of long duration.

*Purulent Effusion.* In regard to cases of this kind, M. Woillez has noticed two circumstances which have also occurred to M. Marrotte; viz., the readiness with which pleurisy passes on to the suppuration in children where it becomes chronic; and the frequency with which puncture with the trocar is followed in them by pleuro-cutaneous fistula. When empyema is present, the formation of a subcutaneous fistula, so as to allow the exit of pus, and the ultimate evacuation and contraction of the cavity without allowing the entrance of air, is much preferable to repeated punctures; although these have been followed by successful results in the hands of Legroux and Roger. M. Marrotte's recommendation has reference to children; but whether it will succeed equally well in the adult must, he observes, be determined by future experience.—*British Medical Journal*, Nov. 19, 1864, from *Bulletin Général de Thérapeutique*, August 30, 1864.

32. *Femoral Aneurism cured by Digital Compression of the External Iliac Artery.* Dr. McGRATH communicated to the Surgical Society of Ireland the following highly interesting case treated at the Military Hospital, Dublin:—

“Private Timothy Mullaney, 36th Regiment, *ætat.* 29, and of nine years' service, was admitted into the General Hospital, Dublin, on the 31st July, suffering from a large pulsating tumour situated in the upper part of the left thigh. The tumour was soft and fluctuating, and extended downwards from immediately below Ponpart's ligament for about three and a half inches, and measured three inches from side to side. The pulsation was extremely violent, and attended with a loud *bruit de soufflet*. There was a considerable amount of constitutional disturbance, the pulse being full and rapid and the skin hot and dry. He complained of severe pain along the inner side of the thigh and in the groin. The patient, a strong, and, in other respects, perfectly healthy